

## Technical specifications

SPECIFICATION FOR STATIC Road ELECTRONIC WEIGHBRIDGE 100 MT capacity  
(Based on Cofmow SPECIFICATION NO. COFMOW/WB/2011)

### Important Notice :

- a) Tenderers are required to give clause wise comments, confirming compliance/non-compliance and deviation etc. to avoid back references. Offers are likely to be ignored in case of non-compliance of these instructions.
- b) Tenderers are required to give details of the leading parameters as per schedule-I. All the information as per Annexures to schedules-I shall also be submitted along with the offers.
- c) deleted.
- d) This specification is general for various capacities/ type. Tenderers should however consider only relevant capacities/ type, for quoting as per description of stores given in schedule of requirement.
- e) The bidders have to quote necessarily for the concomitant accessories, optional accessories, spares, warranty and AMC after warranty.
- f) Tenderers are required to furnish Time Schedule Chart as per Schedule-IV.

### **1. PURPOSE FOR WHICH REQUIRED AND CAPACITY**

1.1 The requirement is for Pit less Electronic Road weighbridges as follows:

~~1.1.1~~ deleted

~~1.1.2~~ deleted

~~1.1.3~~ deleted

**1.1.4 Road Weighbridge of 100 MT capacity** for weighing different consignment upto 100 Metric Tonne loaded in different types of trucks/lorries including Volvo and other trucks as per Schedule-1.

~~1.1.5~~ deleted

~~1.1.6~~ deleted

~~1.1.7~~ deleted

**1.1.8** The weighbridges should be static type suitable for weighing upto 100MT as per technical Specifications and Leading Parameters detailed in Schedule I

### **1.3 General**

**1.3.1** In addition to the technical Specification given at Schedule I the weighbridge shall also be able to meet the technical requirements given below :

- i. Final calibration of the weighbridge should be through software. The calibration program should be accessible only through a double password.
- ii. A separate resident file should be created on HDD of PC (detailed at 2.2.1.1), to automatically log date and time.
- iii. The junction box, if any and the control room etc. should have the arrangement of bolting/locking to prevent it being tampered by unauthorized persons. All the subassemblies/ assemblies, alteration of which can lead to erroneous weighment should be made tamperproof.

**1.3.2** The system shall work in an ambient condition of temperature range of  $-2^{\circ}\text{C}$  to  $55^{\circ}\text{C}$  and relative humidity of 98% and comparatively dusty atmosphere. All

equipments should be designed to function effectively under these conditions. All the enclosures of the equipments should have to confirm to suitable standard (IP etc) to ensure all-weather proofing.

## **2. DESCRIPTION AND SCOPE OF SUPPLY**

**2.1** The specification covers manufacture, supply, installation and commissioning of static type pitless electronic road weighbridge to be installed on turnkey basis (including all electrical and civil engineering work) for weighment of as per schedule I . The supply shall include all concomitant accessories and other equipment as detailed in the basic design features (Para 3 of the technical specification) and any other equipment, which the manufacturer considers essential to make the weighbridge operational when installed and connected to power supply.

### **2.2 Concomitant Accessories**

**2.2.1** The weighbridges should be accompanied by the following concomitant accessories whose cost shall be quoted separately.

**2.2.1.1** One PC to run parallel with the weigh electronic system of the machine shall be provided by Railways

**2.2.1.2** UPS shall be provided by Railways

**2.2.1.3** Window AC 1.5 Ton including Stabilizer, cabling and installation in the control room (Make-Carrier, Voltas, Hitachi, Electrolux, Blue star).

**2.2.1.4** Any other accessory which the supplier consider as essential for commissioning of the weighbridge.

### **2.3 Optional accessories**

The tenderer will also quote for following optional accessories whose cost will not be included in the quoted price of weighbridge.

**2.3.1** Annual Maintenance Contract (AMC): As indicated in clause 15.

**2.3.2** Supply and laying of cable per meter as per clause 3.2.4.1.

**2.4** The total value of the offer will be calculated as per Schedule to tender –

- (i) The cost of basic weighbridge complete in all respects including weighing electronics, etc. including comprehensive maintenance for two years of warranty period.
- (ii) The cost of the concomitant accessories according to tender Specification as per clause 2.2 above including cost of any other accessory offered as concomitant accessory
- (iii) Applicable duties and taxes and charges for insurance, freight, installation and commissioning, training etc.
- (iv) Turnkey and civil works charged as per clause 3.2.5 and 11.2
- (v) Discounted AMC charges for five years after expiry of warranty period of two years( as per formula in Schedule to tender)

### **3. BASIC DESIGN FEATURES**

#### **3.1 Specific characteristics**

##### **3.1.1 Rigidity-control-safety**

- 3.1.1.1 The weighbridges shall be rugged and designed to meet the weighment requirements specified under Schedule- I .
- 3.1.1.2 The weighbridges shall be provided with all safety devices against over load, lightening/surge and should incorporate safety devices so as to ensure complete protection for operation and weighbridges from all operational failures. Suitable interlocking arrangements against faulty sequence of operation, sudden power failure/fluctuation in supply voltage beyond permissible range and malfunctioning in system shall be provided. Protective guards wherever necessary should be provided. The bidder shall explain in detail the various safety provisions available in the weighbridges.
- 3.1.1.3 The controls of weighbridge shall be governed by keyboard provided with the weighing electronics/P.C.

#### **3.2 General Requirements:**

##### **3.2.1 Platform Structure**

- 3.2.1.1 The weighbridge platform shall be a robust modular construction with heavy-duty platform rigid deck with adequate ribbed section and antiskid plate, and of following approximate size:

(i) **Road Weighbridge** : 18000 mm x 3000 mm size for 100MT

- 3.2.1.2 The weighbridge platform structure shall be suitably painted with Power Coated/Epoxy Paint for anti corrosion
- 3.2.1.3 The design details of platform shall be fully explained along with material specifications in the offer.

##### **3.2.2 Load Cells**

- 3.2.2.1 The weighing system shall comprise of Compression type stainless steel load cells of capacity 40 MT or more. The weighbridge shall be supported by these load cells. The no. of load cells provided shall not be less than 8 nos and actual no of load cell used should be indicated in the offer.
- 3.2.2.2 Nonlinearity of each cell will not exceed 0.025% and total error will not exceed 0.02% of full load scale capacity of each cell. The weighbridge shall be so designed as to ensure that lateral force and other undesirable forces do not act on load cells. The design details of load cells shall be explained in the offer. The load cell should be able to withstand the impact load.
- 3.2.2.3 The load cells should be weather proof and shall be suitably protected to withstand environmental conditions viz. flooding, rain water, temperature variations form  $-10^{\circ}$  C. to  $70^{\circ}$  C. with humidity level max. upto 98% - The degree of protection should be IP-68.
- 3.2.2.4 The load cell shall be provided with integral cable.

### **3.2.3 Weigh Electronics.**

**3.2.3.1** The weigh electronic system should be provided with digital display unit which should be microprocessor based having the following features

- i)** Analogue to digital converter enabling flicker free display,
- ii)** Facility for auto calibration,
- iii)** Auto balance,
- iv)** Diagnostics load cell connectors
- v)** Weight display and
- vi)** Weight indicator, and
- vii)** Provision for connection to PC.

**3.2.3.2** The system should also have digital display of weight through a remote weight indicator. The remote weight indicator should be of electromagnetic red bright LED type and should be of 7 numeric characters and shall be installed outside the control room. Character size should be minimum 3”.

**3.2.3.3** The design details of remote weight indicator shall be explained in the offer.

**3.2.3.4** The printed weight tickets shall have the following information:

- i)** Date and time
- ii)** Lorry/vehicle number
- iii)** Product code/description
- iv)** Source
- v)** Destination
- vi)** User message

The format for above data may be submitted along with the tender bid. Modifications if required shall be suggested by the consignee for incorporation.

**3.2.3.5** The system shall also have facility of diagnostics. In case of fault, descriptive message should be displayed on visual display unit. The details of diagnostics available shall be explained in offer.

### **3.2.4 Cabling – Junction Box**

**3.2.4.1** The control room will be constructed at a distance of approximate 10m from the weighbridge. The system shall have cables from the load cells, which shall terminate in a weatherproof junction box suitably fixed on the weighbridge. Further, from junction box the cable will run to the control room housing the digital weight indicator. The cable shall preferably run in a MS conduit pipe for providing extra protection to the cables. Alternatively armoured cable to be provided.

### **3.2.5 Civil Works**

**3.2.5.1** The road weighbridges shall be supplied on Turnkey basis including civil and electrical works like construction of foundation for the weighbridge, construction of control room size – 4 m x 3 m x 3 m (with dust room facilities of size 1 m x 3 m x 3 m), for housing the weigh electronics, PC keyboard and stacking records etc., and provision of two tube lights, ceiling fan in the room and one 3 pin socket. The purchaser will provide site for control room and electrical connection at 230V  $\pm$  10%, 50 Hz.

**3.2.5.2** Control room should be air-conditioned and will house the weigh electronics and the P.C. Air conditioner of minimum 1.5T capacity and 4 star rating will be

provided. Cables and power socket, 15A etc. shall be provided by the firm as part of civil work. The AC should be secured against theft.

3.2.6 P.C. (Personnel Computer) – will be provided by railway

#### **4. TECHNICAL LITERATURE**

4.1 One copy of the printed illustrative catalogue showing features of the weighbridge and its elements must be enclosed with each copy of the bid.

4.2 The successful tenderer will have to furnish for each weighbridge 4 copies of spare parts catalogue giving the part list number of each component with exploded views and assembly drawings, maintenance manual, trouble shooting guide, operational manual of the weighbridge and all electrical circuit diagrams including PCB circuits to the consignee directly within 3 months of placement of A.T. The bidder should provide a list of literature they will supply along with the weighbridge. The technical literature shall be provided for complete weighbridge including important and indigenously purchased components/sub-assemblies.

#### **5. SPARES**

5.1 Two lists of recommended perishable and non-perishable spares required for normal maintenance to cover complete range of mechanical, electronics and electrical equipments including controls on double shift working basis should be furnished and quoted separately. The quantities should relate to, in case of non-perishable spares, to two years normal maintenance, and in case of perishable spares to the duration of its shelf life or two years whichever is less. Shelf life should be indicated with the quotation for spares. A complete catalogue giving the part list number of each component and assembly drawings shall also be provided with each, weighbridge in duplicate. Apart from recommending spares for normal maintenance for two years, the firm should suggest spares (optional) which may be considered useful. A separate list of such optional spares should be incorporated in the bid.

5.2 The spares, **if any ordered**, shall be delivered along with the machine.

#### **6. SPECIAL FEATURES**

6.1 Special features incorporated into the machine, if any, shall be indicated separately by the tenderer, clearly indicating the advantages of the features.

#### **7. DEVIATIONS**

7.1 The tenderer should certify that the weighbridge offered fully meets the specifications. Various design features incorporated in the weighbridge to fulfil different technical and performance requirements should be fully explained in the offer. However, minor deviations from this specification, which do not affect or in any way interfere with the stipulated performance standards, or would result in improved safety/reliability or would reduce recurring maintenance/operating cost of the weighbridge, can be considered for acceptance. The tenderer in such eventuality, shall clearly indicate the details of the deviations and their implications.

## **8. INSPECTION OF EQUIPMENT & TESTING AT MANUFACTURER'S WORKS**

**8.1** The inspection of weighbridges shall be carried out by M/s. RITES.

**8.2** In addition to 8.1, an inspection will also be carried out by Railway's authorized representative for electronics weighbridges at Consignee site during commissioning. Capability of the machine must be demonstrated as per technical Specification to the satisfaction of such authorized representative. And following tests will be performed on the weighbridge:

### **8.2.1 Zero Operation and Indication Test**

Indicator after the test load has been removed, should returns to zero/balance.

### **8.2.2 Zero Tracking Test**

A weighbridge with zero tracking will automatically return to zero if the amount left on the platform does not exceed half a scale interval. This can be up to 5 kg on a weighbridge with 10 kg scale intervals.

### **8.2.3 Eccentricity Test**

The eccentricity test is designed to ensure the weighbridge weighs the same on any part of the platform. To complete this test:

- Place a test weight of at least 50% of the rated capacity of the weighbridge in the centre of the platform and note the reading.
- Progressively place the test weights over the load bearing points (knife edges or load cells) until all load bearing points have been tested. Record the indications in each position.
- Place the test load distributed on all load bearing points and at centre. There should not be more than one scale interval variation between all the indications.

### **8.2.4 Accuracy Test**

Place 10 Tons of standard weights, duly stamped by weighs and measures department at the centre of Weigh Bridge. Note the readings.

Now place 5 Tons of standard weights at the centre of Weigh Bridge. Note the readings.

In both the cases the deviations in the readings should not be more than 10kgs compared to standard weights placed for measurements.

**8.3** The tenderer should clearly confirm that all the facilities to conduct above tests exist at their premises and shall be made available to the inspecting authority.

**8.4** The tenderer will submit quality assurance plan being followed at the manufacturers' works for ensuring quality of the product offered.

## **9. CALIBRATION, TESTING AND CERTIFICATION**

**9.1** The firm shall arrange for calibration, testing and certification of the weighbridges. The certificate shall have to be got done from Weight and Measurement department of the State concerned in accordance with standards for Weights and Measures General Rules (Latest).

## **10. FOUNDATION AND RELATED DRAWINGS**

**10.1** For weighbridge, the supplier shall furnish directly to consignee foundation drawings and related diagrams (mechanical and electrical) within 4 weeks of the receipt of advance acceptance of Tender.

## **11. ERECTION, COMMISSIONING AND PROVING TESTS**

**11.1** The contractor or his agent would be required to carry out a joint check at the consignee's end, along with the consignee, before unpacking is done, to avoid

subsequent complaints regarding short shipment/transit damages. It is necessary that this joint inspection be done immediately on receipt of the machine by consignee to avoid commissioning delays due to shortages/transit damages.

- 11.2 Installation and commissioning (including all electrical and civil engineering works) of weighbridges would be done by the contractor to the satisfaction of the consignee.
- 11.3 The contractor or his agent shall commission the weighbridge within 60 days from the date of intimation by the consignee in respect of readiness of the site. (The duration of 60 days includes civil work at site also).
- 11.4 The machine performance shall be demonstrated by the contractor or his agent after successful commissioning at the consignee's works for a period of two 8 hrs. shifts or 4 trucks. Thereafter the machine performance shall be watched by the consignee for a period of one month (each working day having two shifts of 8 hrs.) or weightment of 30 trucks before the final proving test certificate is issued.
- 11.5 If an assembly/sub-assembly requires to be taken back to the manufacturer's premises for repairs/replacement either before commissioning or during warranty, the manufacturer or his agent would be required to submit an Indemnity Bond. In case the entire weighbridge has to be taken back, a Bank Guarantee would have to be submitted. The Indemnity Bond/Bank Guarantee should be of adequate value so as to cover the cost of the assembly/sub-assembly/paid up cost of the weighbridge.

## 12. DOCUMENTATION REQUIREMENT

- 12.1 **Operator's manual:** Instructions for operating the system for the purpose of weighing and printing should be clearly laid down in an operator's instruction manual. It should contain complete information on using the software; auto calibration and zero balance, carrying out diagnostic tests and system set up before start of weighing.
- 12.2 **Maintenance manual:** It shall contain detailed description of the system and its functioning. This manual shall contain -
  - 12.2.1 Drawings and circuit diagrams with component layout wherever required.
  - 12.2.2 Complete wiring diagram with all wires numbered and components/cards labelled.
  - 12.2.3 List of parts with part number of the assembly and also part number of the original manufacturer and manufacturer's address.
  - 12.2.4 Details of assembly and installation with dip switch setting and jumper settings on electronic cards if any.
  - 12.2.5 Diagnostics and fault finding with check points and parameters to be measured and their value.

## 13. TRAINING

- 13.1 The contractor shall give adequate training to at least two persons nominated by the consignee for operation and maintenance of the system. It should include troubleshooting and repair of the weighbridges and accessories. The schedule of training and cost shall be quoted in the offer.
- 13.2 In addition to the above, technical experts from the manufacturer will fully and adequately train operators nominated by the consignee during commissioning of the weighbridge.

## 14. REFERENCE

The tenderer should provide satisfactory evidence, acceptable to the purchaser to show that he is a licensed manufacturer and has adequate machine and manufacturing capacity and has a "quality assurance programme". **Firm should**

**have infrastructure at their premises to test the weighbridge with standard weights and test weights as per clause 8.2.4 and 8.2.3 of this specification.** Firm should have supplied minimum 5 nos. of Road weighbridges of quoted capacity or one no. Rail Weighbridge, Cap 100 MT in the last three years giving, along with the purchaser's name and address, order number, date and quantity supplied, and their performance and whether the supplies were made within the delivery period. Satisfactory performance certificate against at least **2 such Road weighbridge or 1 Rail Weighbridge, Cap. 100 MT** will be furnished by the tenderer along with the offer. In the absence of the information the offer will be liable to be rejected.

**15. ANNUAL MAINTENANCE CONTRACT :**

- 15.1 Tenderes are required to quote for a comprehensive Annual Maintenance contract for the machine supplied against this specification, which will be inclusive of all spares, material and labour costs. The duties and taxes as applicable shall be indicated separately. All consumables required for day to day operation shall be arranged by Railways.
- 15.2 AMC agreement for each installation will be signed between the consignee and the tenderer if opted for the consignee. The detailed terms and conditions of AMC shall be as given in the following clauses:
- 15.3 The duration of AMC shall be 5 years from the date of expiry of warranty. Rates for AMC shall be quoted by the tenderer on annual basis as given in “schedule to tender” which will remain applicable during the 5 years duration of AMC and not subject to any variation except any variation except any statutory changes in taxes and duties as compared to quoted rates.
- 15.4 The tenderer must confirm willingness to offer AMC services at all consignee locations without any preconditions.
- 15.5 The consignee must communicate their option to enter into AMC according to these terms and conditions at least 30 days prior to expiry of warranty. The AMC agreement must be signed within 6 months from the date of expiry of warranty. In case the AMC agreement is not finalized within 6 months from the date of expiry of warranty, the tenderer may charge one-time initial inspection charges of upto 20% of quarterly AMC charges in addition to the rates quoted for AMC.
- 15.6 Supplier shall ensure satisfactory working and proper upkeep that give benefit to the Railway. The weigh bridge will be attended to by your trained and experienced technical staff under expert supervision and quality control.
- 15.7 The details of preventive maintenance services to be provided under AMC shall be provided by the tenderer in the following format.

| <b>S.No.</b> | <b>Type of preventive Schedule</b> | <b>Periodicity (Minimum once per quarterly</b> | <b>Items to be checked</b> | <b>Items of Replacement</b> | <b>Expected Plant down time</b> |
|--------------|------------------------------------|--|----------------------------|-----------------------------|---------------------------------|
|              |                                    |  |                            |                             |                                 |

Preventive maintenance shall be conducted on weekends through mutual agreement with the consignee.

- 15.8 The tenderer shall ensure that in case a failure is reported by a consignee’s a qualified service engineer shall visit the site within 48 hours. Complaints shall be lodged by consignee by fax, e-mail or per bearer at address given by the tenderer. The responsibility to keep the failure reporting address details current will rest with the tenderer.

**Service requirements :**

|                 |   |   |
|-----------------|---|---|
| Response time   | : | within 36 Hrs.  |
| Resolution time | : | within 48 Hrs.  |
| Critical spares | : | firm should have critical spares stocked with them to arrange within 48 hours of order. |

- 15.9 In case preventive maintenance is carried out along with breakdown maintenance schedule, preventive maintenance time will be deducted from breakdown time of the plant.
- 15.10 **Penalty Clause:** Penalty shall be levied on the tenderer for not attending complaint within 48 Hrs. @ Rs. 1000/- per day. Penalty shall be deducted from the respective quarterly payments. Penalty calculation will be done over quarterly payment period.
- 15.11 A Bank Guarantee(BG) equal to annual value of AMC will be submitted by the tenderer at the commencement of AMC which will be returned on completion of AMC period. In case the tenderer fails to provide AMC services successfully. The AMC BG will be forfeited.
- 15.12 Spares as per list recommended by the bidder will be kept by the consignee which may be used by the tenderer for performing repair & maintenance under warranty/ AMC. However, all spares/ items borrowed by the tenderer for warranty / AMC shall be returned conveniently but not later than the last date of warranty period/ end of next quarterly period of AMC respectively. Cost of outstanding spares may be deducted from pending bills/ Bank Guarantee by the consignee.
- 15.13 (a) In all cases of plant failure any other spare part or material necessary to restore the plant to proper working order will be arranged by the tenderer as a part of AMC.  
(b) In case of damage to the machine on account of any external factor viz. floods, earthquake, fire, arson or sabotage, entire cost of spare parts and material necessary for repair of the plant shall be borne by the railways. However, the tenderer shall provide services of their engineers free of cost as a part of AMC to restore the plant to working order.
- 15.14 In case of damage to the plant as mentioned in para 15.13 (b). any spare parts and material necessary to restore the plant to proper working order shall be arranged by the tenderer and charged on actual basis duly certified by authorized railway official in the next quarterly bills. The rates charged for such spare parts shall be based upon the current OEM's published spare part rate list or current DGS&D rate list for spare parts of the OEM or spare part rates accepted by COFMOW in their latest AT for a similar machine. The tenderer shall furnish one of these documents to support the rates charged for spares used for repair under para 15.13 (b).
- 15.15 Normally quarterly payment under AMC will be made to the tenderer within 30 days from the end of the quarter subject to submission of the following documents by the tenderer to the paying authority assigned by the consignee.  
(a) Consignee's certificate for satisfactory work done with calculation penalty applicable as per clause 15.10 .  
(b) A certificate by consignee that no spare part is due with the tenderer as per clause 12.12 above.  
(c) Bills submitted by the tenderer & accepted by consignee.  
(d) Attested photocopy of the AMC BG.
- 15.16 Supplier shall attend upon the inspection of weight and measurement department authorities whenever the verification and stamping of the weighbridge become due and ensure that the job is completed satisfactory. The stamping fee and other expenses to be paid to weight and measurement department will be borne by the Railway.
- 15.17 The contract shall be determined in following ways:

- (i) Notice in writing by either party, giving 3 months clear notice period. Dues, if any, will be settled in accordance with the condition of this agreement.
- (ii) Consignee may terminate the contract in the event of failure of tenderer to provide AMC services in terms of clause 15.8 of the AMC agreement.

Other general conditions shall be governed by Bid document as applicable.

**16.0 Bought Out Items**

16.1 The bidder shall furnish a list of bought out items/ sub-assemblies/ assemblies/ concomitant accessories/ spares. The list should specifically mention sources of procurement indicating the country of origin, along with the manufacturer's name, brand and model as per proforma AX<sub>3</sub>.

The make of steel for the platform and other structures should be of primary steel manufacturer like TISCO/Jindal/SAIL/ESSAR.

**SCHEDULE-I**  
**TECHNICAL SPECIFICATION NO. COFMOW/WB/2011**

*LEADING PARAMETERS of Road Weighbridge*

**MAJOR PARAMETER**

- |  |   |   |
|--|---|---|
| 1) <b>Road Weighbridge capacity</b>                | : | <b>100 MT</b>   |
| 2) <b>Platform size</b>                            | : | 18m x 3 m   |
| 3) Least count                                     | : | 10 Kg   |
| 4) No. of load cells                               | : | 08 nos. or more   |
| 5) Load cells type                                 | : | Compression type<br>capacity 40 MT or more                        |
| 6) Weighing Electronics                            | : | Microprocessor based tabletop type<br>with Alpha numeric keyboard |
| 7) Memory of weighing electronics (No of Vehicles) | : | 1200 nos. (minimum)   |
| 8) MIS reports                                     | : | Weigh slip/Vehicle- wise/materialwise/<br>datewise                |
| 9) Computer and Printer                            | : | To be provided by Railways  |
| 10) Non-linearity (Accuracy level)                 | : | (+)/(-) 0.025%  |
| 11) Sensitivity                                    | : | 3 mV/Volt   |
| 12) Protection of load cells                       | : | IP68 Class.   |

## ANNEXURE TO SCHEDULE- I

### TECHNICAL SPECIFICATION NO. COFMOW/WB//2011

**NOTE :** The tenderer should ensure that all the relevant data mentioned below be furnished positively.

|              |   |   |             |
|--------------|---|---|-------------|
|              | <b>CAPACITY</b>   | : |             |
| <b>1.</b>    | <b><u>LOAD CELL</u></b>   | : |             |
| <b>1.1</b>   | Type/Manufacture  | : |             |
| <b>1.2</b>   | No. of load cells per weighbridge   | : |             |
| <b>1.3</b>   | Capacity of each load cell (design)   | : |             |
| <b>1.4</b>   | Overload on each load cell (without affecting load cell functioning)  | : |             |
| <b>1.5</b>   | <b><u>Accuracy</u></b>  | : |             |
| <b>1.5.1</b> | Non linearity   | : | % of output |
| <b>1.5.2</b> | Hysteresis  | : | % of output |
| <b>1.5.3</b> | Repeatability   | : | % of output |
| <b>1.5.4</b> | Creep   | : | % of output |
| <b>1.5.5</b> | Combined error  | : | % of output |
| <b>1.6</b>   | Temp. limit   | : | Degree C.   |
| <b>1.7</b>   | Supply voltage  | : |             |
| <b>1.8</b>   | Output voltage  | : |             |
| <b>1.9</b>   | Protections provided from dust and water  | : |             |
| <b>1.10</b>  | Overall dimensions  | : |             |
| <b>2.</b>    | <b><u>Digital data system</u></b>   |   |             |
| <b>2.1</b>   | Make  |   |             |
| <b>2.2</b>   | Details   |   |             |
| <b>3.</b>    | Computer complete with necessary input/output parts, memory, real time clock, monitor, keyboard, processor unit and printer unit.<br>(Attach details) |   |             |
| <b>4.</b>    | Junction box (Attach details)   |   |             |
| <b>5.</b>    | Cables (Attach details)   |   |             |
| <b>6.</b>    | Layout drawing giving location of various elements with dimensions etc.   |   |             |

**SCHEDULE-IV**  
**TIME SCHEDULE CHART**

Machine description  
Specification no.

**FORMAT FOR DATE SCHEDULE CHART**

| <b>S. No.</b> | <b>Activity</b>  | <b>Activity Code</b> | <b>Time Schedule expected by COFMOW</b>                              | <b>Time Schedule- Offered by Bidder</b>        | <b>Remarks If any</b> |
|---------------|--|----------------------|--|--|-----------------------|
| 1.            | Issue of LOA   | D1                   | D  | D  |                       |
| 2.            | Submission of PBG by successful bidder (Cl.07.01 Sec-II of Bid.Doc.Pt.I)             | D2                   | D1 + 30  | D1 + 30  |                       |
| 3.            | Issue of AT by COFMOW after receipt of PBG   | D3                   | D2+30  | -  |                       |
| 4.            | Opening of LC  | D4                   | D3 + 30  | -  | (If Applicable)       |
| 5.            | Submission of GA drawings to consignee by Successful Bidder/Supplier                 | D5                   | D1+30  | D1+--  |                       |
| 6             | Approval of GA drawings by consignee(Max 6 weeks from date of receipt from supplier) | D6                   | D5+30  | --   |                       |
| 7.            | Handing over of clear site by consignee  | D7                   | Latest D9-60   | --   |                       |
| 8.            | Completion of foundation   | D8                   | D7+90  | D7+----  |                       |
| 9             | Supply of machine  | D9                   | D4 + 180 for Foreign suppliers, D3+240 days for indigenous suppliers | D4 + -----or D3 +-----<br>(As the case may be) |                       |
| 10            | Installation of machine  | D10                  | 30 days after receipt at site  | D9+-----                                       |                       |
| 11            | Prove Out and commissioning of machine   | D11                  | D10 + 60   | D10 +-----                                     |                       |
| 12            | Issue of PTC   | D12                  | D11 + 30   | --   |                       |
| 13            | Warranty   | D13                  | D11+2 years  | D11+2 years                                    |                       |
| 14            | AMC  | D14                  | D13+5 years  | D13+5 years                                    |                       |

**Signature of Bidder**

### Annexure AX<sub>3</sub>

| <b>SN</b> | <b>Item/Assembly/SubAssembly</b>         |  |
|-----------|--|--|
| 1.        | Brief description                        |  |
| 2.        | Model no.                                |  |
| 3.        | Make                                     |  |
| 4.        | Quantity/machine                         |  |
| 5.        | Manufacturer's name and complete address |  |
| 6.        | Whether imported or indigenous           |  |
| 7.        | Country of origin                        |  |
| 8.        | Whether warranty included with machine   |  |
|           | <b>Concomitant spares</b>                |  |
| 1.        | Brief description                        |  |
| 2.        | Model no.                                |  |
| 3.        | Make                                     |  |
| 4.        | Quantity/ machine                        |  |
| 5.        | Manufacture's name and complete address  |  |
| 6.        | Whether imported or indigenous           |  |
| 7.        | Country of origin                        |  |
| 8.        | Whether warranty included with machine   |  |
|           | <b>Maintenance Spares</b>                |  |
| 1.        | Brief description                        |  |
| 2.        | Model no.                                |  |
| 3.        | Make                                     |  |
| 4.        | Quantity/machine                         |  |
| 5.        | Manufacturer's name and complete address |  |
| 6.        | Whether imported or indigenous           |  |
| 7.        | Country of origin                        |  |
| 8.        | Whether warranty included with machine   |  |